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LUMBER AND LOG GRADES FOR SOUTHERN HARDWOODS

By R. D. GARVER, Senior Forester
and
RAYMOND H. MILLER, Associate Engineer

June, 1933.

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Forest Products Laboratory, Branch of Research, Forest Service,
United States Department of Agriculture

INTRODUCTION

This report gives information obtained from mill studies on lumber grades, percent defect, overrun for southern hardwood logs of different sizes, qualities, and species for use in evaluating stands of timber in connection with the Forest Survey. It should prove useful as a basis for developing better quality and use grades for hardwood logs.

METHOD OF STUDY

The study was made at eight large sawmills and consisted in scaling and grading logs on the mill deck, then tallying the lumber separately on the green chain for each log. The lumber was identified by numbering each board as it was cut. The Scribner Decimal C log rule was used and

¹The field work in connection with the study was done cooperatively with the Southern Forest Experiment Station, E. L. Demmon, Director, and the Forest Survey, I. F. Eldredge, Director, G. H. Lentz, Assistant Director, and eight lumber companies. The analysis of the results and the preparation of this report were done by the Forest Products Laboratory.

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deductions for defect are on this basis. In scaling the logs the average diameter to the nearest inch was used instead of measuring them the smallest way and reducing the result where the measurement was fractionally over an inch as is done in commercial practice. This latter method gives results about 8 percent below those obtained by standard Forest Service scaling methods. To make the results more useful, however, overrun is shown based on both the Scribner and Doyle log rules. The lumber was graded and tallied in the green condition in accordance with the rules of the National Hardwood Lumber Association, but the footages upon which overrun is based were adjusted to a dry lumber base by deducting 7 percent for oak, 6 percent for ash and cottonwood, 7 percent for red gum and elm, 5 percent for black gum and cypress.

The species have been grouped in certain cases and under "white oak" there are included post oak, forked-leaf oak, and cow oak; under "red oak," cherrybark and black oak; under "water oaks," willow oak, Nuttall oak, lowland black oak, and pin oak; under "ash" are both green and white ash, but mostly it is white ash; and under "elm" are both soft elm and cedar elm, however, only about a half dozen cedar elm are included.

The general location of the different mills follows:

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Mill No. 1.--Located in northern Louisiana. Equipped with a single band and resaw.

Mill No. 2.--Located in east central Louisiana. Equipped with a single band saw.

Mill No. 3.--Located in east central Louisiana. Equipped with a single band and resaw.

Mill No. 4.--Located in western Tennessee. Equipped with single band only.

Mill No. 5.--Located in east central Arkansas. Equipped with single band saw only.

Mill No. 6.--Located in northeastern Arkansas. Equipped with single band saw only.

Mill No. 7.--Located in northeastern Arkansas. Equipped with single band and resaw.

Mill No. 8.--Located in northeastern Arkansas. Equipped with single band and resaw.

LOG GRADES

The information on log grades which follows must be considered as tentative since it is most probable that as the study progresses changes will be made in the proposed grades.

The tables show the different species by diameter classes separated into four groups, except cypress, for which no attempt was made to grade the logs. The groups

are based specifically on the grade yields and the separation is exact. In the field, in applying log grades based on external appearances as well as grade yield stipulations, some of the logs were misgraded. In this report these logs have been put in their proper grades, and the averages show results when all logs are accurately classified according to grade yield.

The species have been divided tentatively into two groups based on the minimum sized log that can be admitted: Group 1 includes the oaks, elm, cottonwood, and black gum; Group 2, ash. In addition the following grade yield requirements have been used: For oak and elm, No. 1 logs must cut out at least 70 percent No. 1 C and Better and 20 percent Firsts and Seconds, No. 2 logs 50 percent No. 1 C and Better, No. 3 logs 25 percent No. 1 C and Better, and No. 4 logs all those cutting less than 25 percent No. 1 C and Better. For black gum, cottonwood, ash, and red gum, No. 1 logs must cut out at least 70 percent No. 1 C and Better and 30 percent Firsts and Seconds, No. 2 logs 50 percent No. 1 C and Better and 10 percent Firsts and Seconds, and No. 3 and No. 4 logs the same as previously shown.

In addition to the general appearance of the logs as related to grade yields the following tabulation of defects and sizes has been set up as a guide. As a further guide there should be some stipulation as to proportion of

the log that must be surface clear to make the grade. No data are available on this phase at present. In grading red gum some stipulation in regard to the proportion of red that logs of a given grade should cut out is also desirable. In this report the sap and heart have been considered together.

HARDWOOD LOG GRADES

No. 1 Logs

<u>Group 1</u>	:	<u>Group 2</u>
<u>Trees 20" D.B.H. or more</u>	:	<u>Trees 16" D.B.H. or more</u>
Butt logs:	:	Butt logs:
16"-18"-- clear	:	12"-15"--clear
19"-22" D.I.B.--1 standard	:	16"-18" D.I.B.--1 standard
defect:	:	defect
23"and up-- 3 do do	:	19"and up-- 3 do do
Other logs:	:	Other logs:
19"-24" -- 1 standard defect	:	15"-20" -- 1 standard defect
25"and up -- 3 do do	:	21"and up -- 3 do do

No. 2 Logs

Butt logs:	:	Butt logs:
12"-13"-- clear	:	10"-11"-- clear
12"-18"-- 2 standard defects	:	10"-14"-- 2 standard defects
19"and up-- 4 do do	:	15"and up-- 4 " "
Other logs:	:	Other logs:
14"-18"-- 1 standard defect	:	10"-14"-- 1 standard defect
19"-24"-- 3 do do	:	15"-20"-- 3 do do
All logs:	:	All logs:
25"and up -- 5 do do	:	21"and up-- 5 do do
	:	

No. 3 Logs

Shall include all other logs 12 inches and up D.I.B. which because of defects do not fall in grades 1 and 2 but do

1. The first part of the report is a general

statement of the facts of the case, and a statement of the

principles of law which are applicable to the facts.

2. The second part of the report is a statement of the

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which are applicable to the facts.

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contain 25 percent No. 1 Common and Better lumber and can be utilized for either lumber, ties, timbers, bridge planking, etc. (two faces that will cut No. 1 Common).

No. 4 Logs

Shall include all logs not included in foregoing grades.

Standard Defect

A standard defect shall be measured by the damage resulting from:

A 4" sound knot or its equivalent in smaller knots or other defects, such as grubs, worm holes, bird pecks, bark pockets, etc.

A 4" sweep in logs under 18" in diameter equals 1 defect.

A 6" sweep in logs 19"-24" in diameter equals 1 defect.

Sweep in logs larger than 25" in diameter is no defect.

PRESENTATION OF DATA

Insofar as was practicable results have been separated by mills. A comparison has been provided that takes into account the comparable data from all mills studied.

Table A gives the time required by the single band mills to saw a thousand feet of lumber from logs of different sizes and species. No delay time is included in these figures.

Table A.--Actual sawing time per thousand board feet of lumber for different species and log sizes at single band mills (without resaws)

Diameter:		Overcup,							
inside	White	red,	and	Red	Ash	Cotton-	Elm	Cypress	
bark	oaks	water	oaks:	gum		wood			
Inches	Minutes per thousand board feet lumber tally								
10	25.9	33.1	15.6	34.0					
11	25.1	27.6	15.2	28.6					
12	24.0	23.3	14.8	25.8					
13	22.8	20.8	14.4	23.6	12.9	19.1	12.7		
14	21.3	19.2	14.2	22.0	12.6	18.3	12.1		
15	19.9	18.2	13.9	20.7	12.4	17.5	11.6		
16	18.8	17.3	13.7	19.6	12.3	16.8	11.2		
17	18.5	16.9	13.5	18.7	12.2	16.2	10.7		
18	18.7	16.5	13.3	18.1	12.0	15.7	10.4		
19	19.8	16.1	13.2	17.5	11.9	15.2	10.0		
20	20.9	15.8	13.1	17.0	11.8	14.8	9.7		
21	21.9	15.6	13.0	16.6	11.7	14.4	9.5		
22	22.8	15.4	12.9		11.6	14.0	9.3		
23	23.6	15.2	12.8		11.5	13.7	9.0		
24	24.3	14.9	12.8		11.3	13.4	8.9		
25	24.9	14.7	12.7		11.1	13.2	8.7		
26	25.5	14.5	12.7		11.0	13.0	8.5		
27	26.0	14.5	12.6		10.8	12.8	8.4		
28	26.4	14.5	12.6		10.6	12.7	8.4		
29	26.8	14.5	12.5		10.5	12.6	8.4		
30	27.2	14.5	12.4		10.3	12.5	8.4		
31	27.5	14.6	12.4		10.2		8.5		
32	27.8	14.8	12.3		10.1		8.5		
33		15.2	12.2		10.0		8.6		
34		15.6	12.2		9.8		8.7		
35		16.0	12.1		9.7				
36		16.5	12.0						
37		16.9					9.1		
38		17.4							
39		18.0							
40		18.5							
44								10.0	

In general the sawing time is greater for small logs than for medium large logs, but for the largest logs the time is somewhat greater for the medium-sized logs.

Table B gives the sawing time for the mills equipped with a single band head saw, supplemented by a resaw. Where sawing practices are comparable a resaw supplementing a head saw appears to increase output about 70 percent as compared with a single band mill. With cypress, however, the single band mills sawed faster in some sizes but this is due to the high proportion of thick stock that was cut. The amount of quarter sawing accounts for the sawing relationship between the two classes of mills being somewhat out of line for white oak.

The time required to saw a thousand board feet of lumber is influenced by thicknesses of lumber sawed and the proportion of timbers. Table C presents figures showing by mills and species the proportion of the cut that was sawed into the different thicknesses, also the average for all mills. This information is necessary in order to understand fully the comparison of sawing time, overrun, and grade yields shown in the various tables in the report. Thicknesses of lumber varied from 1/2 inch to 12/4 inches. No. 3 and No. 5 ties were cut and a few timbers no larger in cross-section than the ties.

Table B.--Actual sawing time per thousand board feet of lumber for different species and log sizes at single band mills with resaw

Diameter: inside bark	White oaks	Overcup, red, and water oaks	Red gum	Ash	Elm	Black gum	Cypress
Inches	Minutes per thousand board feet lumber tally						
10		27.4		22.0	20.2		20.0
11		22.8		18.4	18.0		18.2
12	11.8	18.3	12.3	15.1	15.7		16.4
13	10.7	15.3	11.4	13.0	13.7		14.6
14	9.8	13.2	10.6	11.9	12.1	14.3	13.0
15	8.9	11.7	10.0	11.4	10.8	14.3	11.6
16	8.2	10.6	9.4	11.1	9.7	14.4	10.8
17	7.8	9.9	8.8	10.8	8.8	14.6	10.4
18	7.6	9.4	8.4	10.6	8.3	15.1	10.1
19	7.5	9.2	8.0	10.5	7.8	15.7	10.0
20	7.6	9.1	7.7	10.4	7.5	16.6	10.0
21	8.2	9.0	7.4	10.3	7.2	17.7	9.9
22	9.4	9.0	7.1	10.3	7.0	18.6	9.9
23	11.2	9.0	6.9	10.3	6.9	19.4	9.8
24	12.6	8.9	6.7		6.8	20.1	9.8
25	13.6	8.9	6.6		6.7	20.7	
26	14.4	8.8	6.5		6.7	21.2	
27	15.2	8.8	6.4			21.6	
28	15.9	8.7	6.4			22.0	
29	16.5	8.7	6.4			22.3	
30	17.0	8.6	6.4			22.6	
31	17.5	8.6	6.4			22.8	
32	17.9	8.5	6.4			23.0	
33	18.2	8.5	6.4			23.2	
34	18.6	8.6	6.5				
35	18.8	8.7	6.5				
36	19.0	9.0	6.5			23.4	
37	19.2	9.4	6.6				
38	19.4	9.9	6.6				
39	19.6	10.4	6.7				
40	19.8	11.0	6.7				

Table C.--The proportion of the cut that was sawed into the different thicknesses by mills and species

Thickness: of material:	Mill numbers								All mills
	1	2	3	4	5	6	7	8	
Inches	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent
<u>Overcup Oak</u>									
3/4	0.8			0.1				0.1	0.2
4/4	96.4	47.0	84.4	65.1	44.8	20.6	97.3	48.6	73.0
5/4	.1	43.7		0.3	.4			16.0	4.4
6/4			10.0	32.1	51.8	74.6		3.7	12.5
8/4	1.6		5.6	2.4	3.0			9.3	4.0
10/4						3.9		.4	.2
12/4	1.1					.9	2.7	21.6	5.5
Timbers	0	9.3	0	0	0	0	0	.3	.2
<u>White Oaks</u>									
1/2	1.9					.1	.1		.9
3/4	8.7					.1		.7	4.1
4/4	67.6			64.3	46.1	26.9	98.3	39.9	75.0
5/4	.9			.1				19.9	.7
6/4				31.7	47.2	69.9	.1	7.5	12.8
8/4	10.0			3.9	2.3	.1		16.8	5.4
10/4	.1				.9	2.4	.1		.4
12/4	.1				3.5	.5	1.4	15.2	.7
Ties	10.7								
<u>Red Oaks</u>									
1/2		36.0							1.0
5/8				.1		77.7			3.3
3/4	27.0			3.3	.2	.4			12.2
4/4	73.0	18.6	53.8	47.1	55.4	21.9			56.3
5/4		41.5		.2	.3				1.3
6/4			46.2	49.2	39.6				25.3
8/4									
10/4					.8				.1
12/4				.1	3.7				.4
Timbers		3.9							.1

Table C (continued)

Thickness: of material:	Mill numbers								All mills
	1	2	3	4	5	6	7	8	
Inches	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent	Per- cent
<u>Water Oaks</u>									
1/2	0.1	31.3			0.1				3.6
5/8	.6						56.5		1.4
3/4	18.5			0.8	.3				3.9
4/4	80.6	19.7	47.1	46.2	58.8		42.8	95.8	53.9
5/4		40.6		.3	.2				4.8
6/4			52.6	52.4	35.4				30.3
8/4			.3	.2	.6			1.3	.3
10/4					.3			.9	.1
12/4	.2			.1	4.3		.7	2.0	.7
Timbers		8.4							1.0
<u>Red Gum</u>									
1/2		2.5							1.1
3/4				1.4					.1
4/4		57.3	11.9	59.3			81.4	91.4	41.0
5/4		23.6		7.7			18.5	8.4	12.1
6/4			82.2	29.8			.1	.2	35.9
8/4		16.6	5.7						9.7
10/4			.2						.1
12/4				1.8					
<u>Green and White Ash</u>									
5/8	46.9								24.9
4/4	32.7		94.7	66.1				56.8	46.2
5/4	.2			33.5				1.0	3.5
6/4	9.9		1.5	.4				41.4	19.5
8/4	8.3		3.8					.2	4.6
10/4	1.4								.8
12/4	.6							.6	.5
<u>White Elm</u>									
4/4		67.7	0.1				23.1	84.6	48.1
5/4							37.5	.6	1.3
6/4			99.4				39.4	6.0	29.5
8/4		32.3	.5					2.4	20.8
10/4								2.7	.1
12/4								3.7	.2

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Table C (continued)

Thickness: of material	Mill numbers			All
	2	7	8	mills
<u>Inches</u>	<u>Per-</u> <u>cent</u>	<u>Per-</u> <u>cent</u>	<u>Per-</u> <u>cent</u>	<u>Per-</u> <u>cent</u>
<u>Cottonwood</u>				
4/4	45.3	99.6		49.7
5/4	.4	.4		.4
6/4	54.3			49.9
<u>Black Gum</u>				
4/4	99.5	100.0		99.5
5/4	.5			.5
<u>Cypress</u>				
4/4	7.8	82.0	71.3	24.8
5/4	86.8	.6	.3	66.5
6/4		13.8		2.6
8/4		3.1	4.8	.8
Timbers	5.4	.5	23.6	5.3

Tables 1 to 10, inclusive, give the results on grade yields, overrun, and the like, by log grades, species, and diameter classes for all mills together. In addition, the average for each mill is shown so that the cooperators can compare the figures for their own operation with other mills and with the average for all mills. Table 11 is for cypress and no attempt was made to separate the logs into grades.

Example of the Use of Tables 1 to 10

In Table 1, for example, the figures for white oak (includes forked-leaf, post, and cow oak) are given. Suppose Mill No. 1 is reviewing the report. The figures show that for No. 1 logs this mill obtained 52.0 percent Firsts and Seconds as compared to 48.2, 47.8, and 38.9 percent for mills 4, 6, and 8, respectively, and an average of 47.3 for all mills. The underrun was found to be 21.3 percent at mill No. 1 as compared to 15.0 percent for all mills, or 19.0 percent for mill No. 7. Similar comparisons can be made for all the other items in the tables, such as quality, overrun, percent defect, percent No. 1 C and Better, for logs of different sizes and log grades. The tables are sufficiently self-explanatory so that introductory discussion is unnecessary.

Table 1.--White oak -- Percentage of lumber by grades, overrun, and defect by log grades

LOG GRADE NO. 1														LOG GRADE NO. 2														
Lumber in different grades in green condition														Lumber in different grades in green condition														
Mill number	Diameter inside bark	No. of logs	F.A.S. Selects	No. 1 C	No. 2 C	No. 3 A	No. 3 B	No. 3 B and better	Common	Doyle	Overrun and under-run on net scale	Volume in each diameter or log grade tally	Defect: lumber tally	Mill number	Diameter inside bark	No. of logs	F.A.S. Selects	No. 1 C	No. 2 C	No. 3 A	No. 3 B	No. 3 B and better	Common	Doyle	Overrun and under-run on net scale	Volume in each diameter or log grade tally	Defect: lumber tally	
Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	
All mills	16	8	37.8	19.3	18.7	7.2	8.1	8.9	75.8	17.2	30.3	2.1	0.0	All mills	12	13	17.1	16.5	29.0	21.8	8.7	6.9	62.6	76.1	3.3	2.6		
"	17	11	56.0	10.1	16.9	6.4	3.8	3.3	83.0	21.8	32.2	3.3	2.3	"	13	14	19.2	13.2	31.7	21.1	8.1	6.7	64.1	51.8	0.0	2.2		
"	18	14	45.2	8.9	31.0	6.5	3.0	5.1	85.1	7.0	17.0	5.5	0.0	"	14	19	20.8	13.8	32.1	15.7	0.4	8.0	66.7	51.8	1.6	4.1		
"	19	16	47.3	9.6	29.6	6.3	1.6	1.1	86.5	6.5	13.7	7.8	2.8	"	15	27	19.4	15.8	34.1	13.8	5.6	7.6	62.3	39.3	1.8	6.8		
"	20	21	42.6	10.7	32.0	5.4	2.0	6.9	85.3	1.2	7.2	7.8	2.8	"	16	18	16.0	11.8	34.0	16.4	9.3	7.6	61.8	28.8	2.0	4.9		
"	21	19	41.7	9.7	31.7	4.9	1.9	3.9	83.1	1.7	3.6	8.1	1.7	"	17	24	16.6	9.1	36.5	14.0	4.3	6.9	62.2	27.9	1.6	7.7		
"	22	22	44.1	8.4	21.0	6.8	2.2	5.3	83.7	1.9	8.2	5.0	2.8	"	18	18	19.2	8.4	36.1	13.0	0.5	8.0	64.6	20.5	2.3	6.7		
"	23	13	42.5	6.4	36.9	5.9	2.7	1.6	89.8	11.9	26.6	5.6	2.0	"	19	34	19.2	6.6	36.8	13.5	0.7	2.3	74.8	13.1	0.7	13.7		
"	24	16	36.0	3.9	45.9	5.2	2.6	3.9	85.8	12.5	21.4	8.3	0.2	"	20	17	19.8	12.0	35.2	12.2	1.4	10.1	72.2	6.5	1.4	7.0		
"	25	15	47.7	6.0	37.6	4.8	1.0	2.9	91.3	24.5	21.4	7.4	3.3	"	21	19	22.0	7.2	37.5	15.3	4.7	6.9	66.7	2.2	1.4	7.9		
"	26	15	56.0	4.6	32.8	3.0	1.4	3.2	93.4	23.2	20.7	8.3	1.0	"	22	18	13.8	7.0	48.7	16.3	2.4	6.4	69.1	1.9	3.4	8.5		
"	27	11	48.4	6.7	37.2	5.0	0.2	3.1	90.3	24.3	21.4	6.7	0.9	"	23	14	15.8	6.7	44.0	14.9	0.9	5.4	68.2	0.9	1.7	7.6		
"	28	10	45.2	6.5	35.4	8.4	1.8	2.9	87.2	27.5	26.6	5.2	2.9	"	24	11	14.9	5.2	43.5	20.4	0.6	7.9	66.6	16.8	2.8	5.7		
"	29	3	57.6	5.1	34.4	3.4	1.0	5.4	93.8	22.9	25.0	7.7	1.2	"	25	5	14.4	4.9	49.3	18.3	0.4	7.5	72.2	19.9	1.0	4.2		
"	30	5	50.7	5.1	34.4	3.4	1.0	5.4	90.2	27.1	29.2	4.9	0.7	"	26	7	14.1	4.9	49.3	18.3	0.4	7.5	68.3	19.6	2.3	4.2		
"	31	7	47.2	6.9	36.5	4.6	0.5	4.3	90.6	31.3	33.2	4.9	2.6	"	27	4	21.0	6.7	47.5	21.1	0.9	2.8	75.2	21.3	3.9	2.6		
"	32	4	77.4	7.2	33.1	1.7	0.5	5.6	97.7	23.4	28.5	4.9	0.8	"	28	3	14.6	6.5	42.2	18.7	4.8	2.7	71.8	27.6	5.2	1.8		
"	33	4	55.8	7.6	28.4	1.4	0.5	5.6	89.8	24.5	29.5	3.3	1.5	"	29	3	23.1	6.5	42.2	18.7	4.8	2.7	71.8	27.6	5.2	2.3		
"	34	1	23.2	2.4	49.6	15.2	2.1	7.5	75.2	22.3	31.0	0.0	0.4	"	30	2	29.9	3.2	29.9	9.6	2.7	24.7	63.0	36.8	18.4	1.1		
"	35	1	51.1	6.0	39.5	1.8	1.0	0.5	96.6	26.9	33.0	2.4	2.2	Average of all mills	19.2	270	18.2	9.0	39.7	15.5	0.6	4.4	6.2	66.9	0.3	5.9	2.2	36.1
"	36	1	52.3	7.5	33.2	5.3	0.2	1.9	88.0	15.0	13.4	1.7	1.7	Average by mills	20.8	97	22.9	7.1	33.8	13.0	1.1	3.5	4.6	63.8	2.5	1.7	33.5	
"	25.1	77	52.0	6.4	30.8	4.2	0.4	1.5	89.2	21.3	18.2	1.9	0.6	"	14	69	15.8	14.2	32.5	18.7	0.4	5.9	64.5	17.7	39.2	51.8		
"	26.1	25	48.2	14.1	19.8	8.7	0.4	3.7	82.1	12.0	19.4	0.6	0.3	"	15	8	16.4	15.2	32.5	18.7	0.4	5.9	64.5	17.7	39.2	51.8		
"	27.1	43	47.8	9.5	31.7	6.5	0.0	4.8	77.2	1.3	6.0	0.3	0.3	"	16	35	14.9	13.2	42.6	14.5	0.0	8.4	70.9	9.2	17.9	38.0		
"	28.1	59	41.8	6.9	38.3	5.8	0.0	4.6	87.0	19.0	15.7	1.8	0.9	"	17	61	13.1	6.1	49.7	19.0	0.1	3.6	68.9	10.7	5.8	33.8		
"	29.1	3	36.9	1.4	40.3	5.8	0.0	4.6	87.0	19.0	15.7	1.8	0.9	Average of all mills	21.2	--	13.1	--	--	--	--	--	--	--	--	--	--	
"	24.2	3	36.9	1.4	40.3	5.8	0.0	4.6	87.0	19.0	15.7	1.8	0.9	Average by mills	21.2	--	13.1	--	--	--	--	--	--	--	--	--	--	
"	25.1	77	52.0	6.4	30.8	4.2	0.4	1.5	89.2	21.3	18.2	1.9	0.6	"	14	69	15.8	14.2	32.5	18.7	0.4	5.9	64.5	17.7	39.2	51.8		
"	26.1	25	48.2	14.1	19.8	8.7	0.4	3.7	82.1	12.0	19.4	0.6	0.3	"	15	8	16.4	15.2	32.5	18.7	0.4	5.9	64.5	17.7	39.2	51.8		
"	27.1	43	47.8	9.5	31.7	6.5	0.0	4.8	77.2	1.3	6.0	0.3	0.3	"	16	35	14.9	13.2	42.6	14.5	0.0	8.4	70.9	9.2	17.9	38.0		
"	28.1	59	41.8	6.9	38.3	5.8	0.0	4.6	87.0	19.0	15.7	1.8	0.9	"	17	61	13.1	6.1	49.7	19.0	0.1	3.6	68.9	10.7	5.8	33.8		
"	29.1	3	36.9	1.4	40.3	5.8	0.0	4.6	87.0	19.0	15.7	1.8	0.9	Average of all mills	21.2	--	13.1	--	--	--	--	--	--	--	--	--	--	
"	24.2	3	36.9	1.4	40.3	5.8	0.0	4.6	87.0	19.0	15.7	1.8	0.9	Average by mills	21.2	--	13.1	--	--	--	--	--	--	--	--	--	--	
"	25.1	77	52.0	6.4	30.8	4.2	0.4	1.5	89.2	21.3	18.2	1.9	0.6	"	14	69	15.8	14.2	32.5	18.7	0.4	5.9	64.5	17.7	39.2	51.8		
"	26.1	25	48.2	14.1	19.8	8.7	0.4	3.7	82.1	12.0	19.4	0.6	0.3	"	15	8	16.4	15.2	32.5	18.7	0.4	5.9	64.5	17.7	39.2	51.8		
"	27.1	43	47.8	9.5	31.7	6.5	0.0	4.8	77.2	1.3	6.0	0.3	0.3	"	16	35	14.9	13.2	42.6	14.5	0.0	8.4	70.9	9.2	17.9	38.0		
"	28.1	59	41.8	6.9																								

Table 2.--Overrun oak -- Percentage of lumber by grades, overrun, and defect by log grade

LOG GRADE NO. 1														LOG GRADE NO. 2													
Lumber in different grades in green condition														Lumber in different grades in green condition													
Mill number	Diameter inside bark	No. of logs	No. 1A: Selects				No. 2: O: wormy				No. 3: A: No. 3B and better				Tie time: bare	Doyle	Scribner	No. 1: run on net scale	Common and better	No. 2: run on net scale	Defect: diameter or log grade lumber tally						
			Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent								Per cent	Per cent	Per cent	Per cent	Per cent	
Inches	Inches	Inches	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent							
16	16	7	39.4	16.9	22.4	6.5	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
17	17	7	31.3	17.5	32.6	13.5	2.0	3.1	11.1	28.8	18.1	28.8	18.1	28.8	18.1	28.8	18.1	28.8	18.1	28.8							
18	18	5	38.4	25.5	27.1	8.4	2.2	3.1	11.1	28.8	18.1	28.8	18.1	28.8	18.1	28.8	18.1	28.8	18.1	28.8							
19	19	7	46.2	11.7	27.1	5.5	0.1	5.8	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
20	20	8	36.9	13.1	34.4	6.5	0.2	8.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
21	21	14	42.6	10.9	28.0	7.6	4.7	4.5	1.7	81.5	0.5	5.8	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
22	22	1	46.8	27.2	39.8	8.9	4.7	7.3	1.1	83.8	0.5	5.8	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
23	23	5	34.6	10.8	37.1	8.1	1.1	10.3	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
24	24	1	43.1	8.6	34.3	9.4	2.3	2.3	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
25	25	3	45.5	3.0	30.9	8.8	1.2	10.6	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
28	28	4	45.4	2.2	20.0	5.2	1.0	6.2	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
29	29	4	47.1	2.8	32.3	8.6	0.4	8.8	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
32	32	2	56.1	3.9	20.7	10.3	1.9	7.1	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4	4.4	10.4							
Average of all mills	21.7	68	44.4	10.2	28.2	7.7	0.1	6.9	0.3	82.8	1.8	2.1	2.0	24.4													
Average by mill																											
1	24.6	4	39.6	6.7	31.7	12.5	2.7	6.8	0.0	78.0	7.3	5.6	0.0	7.4	1	22.4	4.3	4.3	16.4	41.3	16.4						
2	25.0	5	57.8	7.4	25.9	5.2	3.4	3.7	4.7	91.1	13.7	10.2	1.9	13.7	2	20.2	4.9	4.9	23.1	51.1	23.1						
3	18.7	27	40.9	11.2	25.8	8.0	1.6	4.7	5.1	83.9	7.6	12.5	1.8	36.2	3	16.5	21.6	17.8	33.6	33.6	17.8						
4	19.1	11	38.4	12.9	36.8	6.2	2.5	7.8	4.4	81.5	7.2	11.4	2.5	47.3	4	19.0	10.1	12.4	52.8	52.8	12.4						
5	24.4	19	50.5	5.6	24.1	7.3	2.0	9.6	0.9	80.2	4.0	1.3	1.1	40.4	5	20.2	5.5	13.1	43.3	43.3	13.1						
Average of all mills	21.7	68	44.4	10.2	28.2	7.7	0.1	6.9	0.3	82.8	1.8	2.1	2.0	24.4													

Table 3.--Red oak -- Percentage of lumber by grades, overrun, and defect by log grades

LOG GRADE NO. 1															LOG GRADE NO. 2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
Mill num-ber	Diameter inside bark	No. of logs	Lumber in different grades in green condition										Inches	Diameter inside bark	No. of logs	Lumber in different grades in green condition										Inches	Diameter inside bark	No. of logs																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			No. 1A					No. 2C								No. 3A					No. 3B																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
			Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent				Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent				Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent

Table 4.--Water oaks -- Percentage of lumber by gradee, overrun, and defect by log grades

LOG GRADE NO. 1														LOG GRADE NO. 2													
Lumber in different grades in green condition														Lumber in different grades in green condition													
:Overrun and under-run on net scale														:Overrun and under-run on net scale													
:ties Common and better														:ties Common and better													
:Scribner Doyle														:Scribner Doyle													
:Volume in each diameter or log grade tally														:Volume in each diameter or log grade tally													
:Defect: timbers														:Defect: timbers													
:No. 1: No. 2: No. 3: No. 4: No. 5: No. 6: No. 7: No. 8: No. 9: No. 10: No. 11: No. 12: No. 13: No. 14: No. 15: No. 16: No. 17: No. 18: No. 19: No. 20: No. 21: No. 22: No. 23: No. 24: No. 25: No. 26: No. 27: No. 28: No. 29: No. 30: No. 31: No. 32: No. 33: No. 34: No. 35: No. 36: No. 37: No. 38: No. 39: No. 40: No. 41: No. 42: No. 43: No. 44: No. 45: No. 46: No. 47: No. 48: No. 49: No. 50: No. 51: No. 52: No. 53: No. 54: No. 55: No. 56: No. 57: No. 58: No. 59: No. 60: No. 61: No. 62: No. 63: No. 64: No. 65: No. 66: No. 67: No. 68: No. 69: No. 70: No. 71: No. 72: No. 73: No. 74: No. 75: No. 76: No. 77: No. 78: No. 79: No. 80: No. 81: No. 82: No. 83: No. 84: No. 85: No. 86: No. 87: No. 88: No. 89: No. 90: No. 91: No. 92: No. 93: No. 94: No. 95: No. 96: No. 97: No. 98: No. 99: No. 100: No. 101: No. 102: No. 103: No. 104: No. 105: No. 106: No. 107: No. 108: No. 109: No. 110: No. 111: No. 112: No. 113: No. 114: No. 115: No. 116: No. 117: No. 118: No. 119: No. 120: No. 121: No. 122: No. 123: 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Table 6.--Red gum, second-growth -- Percentage of lumber by grades, overrun, and defect by log grades

LOG GRADE NO. 1																			
Lumber in different grades in green condition										Lumber in different grades in green condition									
Mill num-ber	Diameter: inside bark	No. of logs	F.A.S.	Red	Sap	Per cent	Per cent	No. 1 C	No. 2 C	No. 1 C	No. 2 C	F.A.S.	Red	Sap	Per cent	Per cent	No. 1 C	No. 2 C	No. 1 C
No. 1 C										No. 2 C									
No. 1 C										No. 2 C									
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Table 9.--American elm --- Percentage of lumber by grades, overrun, and defect by LOG Grades

LOG GRADE NO. 1														LOG GRADE NO. 2												
Mill number	Diameter inside bark	Inches	Lumber in different grades in green condition				Overrun and under-run on net scale				No. 1 Common and better	Lumber in different grades in green condition				Overrun and under-run on net scale				No. 1 Common and better	Lumber in different grades in green condition				No. 1 Common and better	
			Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent		Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent		Per cent	Per cent	Per cent	Per cent		
All mills			34.3	9.8	34.1	10.3	11.0	78.7	7.2	19.5		28.3	2.6	30.6	9.5	29.0	61.5	10.0	38.8		28.3	2.6	30.6	9.5	29.0	61.5
"	16	17	49.4	11.3	17.6	11.3	10.4	78.3	1.0	9.4		25.0	11.9	42.1	19.9	13.1	67.0	36.7	42.4		25.0	11.9	42.1	19.9	13.1	67.0
"	18	19	42.8	2.5	31.7	12.7	10.3	77.0	3.0	11.1		10.9	8.4	42.1	25.8	12.8	61.4	25.7	42.4		10.9	8.4	42.1	25.8	12.8	61.4
"	20	21	58.7	6.7	14.9	9.2	10.5	80.3	-2.9	6.7		30.4	8.7	27.1	23.1	10.7	66.2	14.0	33.9		30.4	8.7	27.1	23.1	10.7	66.2
"	21	22	49.6	7.2	23.1	13.2	6.9	79.9	-5.6	1.2		16.8	10.4	36.2	21.2	15.4	63.4	7.3	20.1		16.8	10.4	36.2	21.2	15.4	63.4
"	22	23	52.1	7.8	20.9	10.4	8.8	80.8	-8.1	-		19.6	4.2	38.3	26.6	11.3	62.1	15.2	26.0		19.6	4.2	38.3	26.6	11.3	62.1
"	23	24	46.9	16.5	19.9	11.6	5.1	83.3	-7.1	-		19.3	6.1	38.3	23.9	12.4	63.7	4.6	5.4		19.3	6.1	38.3	23.9	12.4	63.7
"	24	25	53.6	10.3	19.4	9.2	7.1	80.5	-11.2	-		27.8	7.7	27.7	24.6	12.2	63.2	1.4	6.0		27.8	7.7	27.7	24.6	12.2	63.2
"	25	26	51.4	8.5	20.6	12.4	7.1	80.5	-11.6	-		28.1	4.6	30.5	23.4	13.4	64.8	-	2.1		28.1	4.6	30.5	23.4	13.4	64.8
"	26	27	42.4	7.9	29.1	13.7	6.9	79.4	-17.1	-		31.0	8.1	25.7	23.0	12.2	64.8	-	14.3		31.0	8.1	25.7	23.0	12.2	64.8
"	28	29	59.1	2.6	25.7	10.4	2.2	87.4	-8.5	-		13.4	4.8	24.6	23.8	12.4	63.8	-	12.9		13.4	4.8	24.6	23.8	12.4	63.8
"	30	31	45.9	14.2	16.8	6.1	2.6	91.3	-12.0	-		13.6	4.0	41.5	31.4	10.5	51.6	-	11.8		13.6	4.0	41.5	31.4	10.5	51.6
Average of all mills	21.5	21.5	51.1	7.8	22.2	11.4	7.5	81.1	-6.4	-	2.1	25.0	6.0	32.6	22.5	13.9	63.6	-	5.1	7.6	38.8					
Average by mills														Average by mills												
2	22.1	22.1	52.3	8.7	20.6	12.0	6.4	81.6	-9.7	-	6.5	27.3	7.4	29.3	22.1	13.9	64.0	-	1.0	10.4	34.3					
3	19.7	19.7	48.6	4.7	25.7	9.4	11.6	79.0	6.8	14.6		13.6	3.7	22.6	41.9	13.7	58.1	1.2	7.3	3.5	47.9					
7	19.3	19.3	39.3	7.5	36.2	10.8	6.2	83.0	0.3	6.3		30.6	3.8	27.6	23.0	15.0	62.0	-	3.2	2.9	36.8					
Average by mills														Average by mills												
All mills			35.4	43.3	35.4	21.3	35.4	35.4	27.5	112.5		14.7	38.2	47.1	38.2	47.1	14.7	6.7	18.5		14.7	38.2	47.1	38.2	47.1	14.7
"	10	11	36.2	25.9	32.2	22.6	41.9	41.9	47.3	92.9		15.5	51.8	32.7	51.8	32.7	15.5	14.0	27.5		15.5	51.8	32.7	51.8	32.7	15.5
"	12	13	27.2	40.0	22.6	33.3	35.1	35.1	37.0	62.5		18.0	55.8	26.2	55.8	26.2	18.0	13.0	50.0		18.0	55.8	26.2	55.8	26.2	18.0
"	14	15	26.7	31.6	33.3	17.8	38.6	38.6	30.0	53.6		7.5	42.9	41.0	42.9	41.0	7.5	9.1	29.5		7.5	42.9	41.0	42.9	41.0	7.5
"	16	17	33.5	36.4	24.5	24.5	39.1	39.1	1.5	14.9		24.4	55.6	20.0	55.6	20.0	24.4	5.0	17.8		24.4	55.6	20.0	55.6	20.0	24.4
"	18	19	32.4	41.6	17.9	2.8	44.4	44.4	2.9	11.4		4.3	84.0	11.7	84.0	11.7	4.3	11.6	25.7		4.3	84.0	11.7	84.0	11.7	4.3
"	20	21	27.5	31.8	24.3	18.1	42.2	42.2	9.0	23.0		---	---	---	---	---	---	---	---		---	---	---	---	---	---
"	22	23	33.5	39.7	18.1	18.1	39.7	39.7	5.4	4.0		---	---	---	---	---	---	---	---		---	---	---	---	---	---
"	24	25	39.5	40.1	16.4	19.9	40.7	40.7	15.0	10.0		---	---	---	---	---	---	---	---		---	---	---	---	---	---
"	26	27	40.1	38.7	16.6	10.7	39.6	39.6	7.3	3.1		---	---	---	---	---	---	---	---		---	---	---	---	---	---
"	30	31	27.0	49.7	10.7	10.7	39.6	39.6	3.5	6.9		---	---	---	---	---	---	---	---		---	---	---	---	---	---
Average of all mills	17.5	17.5	8.0	3.6	29.7	39.0	19.7	41.3	1.3	10.1		15.3	12	12.2	58.8	26.8	14.4	-	11.3	14.0	2.7					
Average by mills														Average by mills												
2	18.2	18.2	6.0	4.6	31.0	40.8	17.6	41.6	-	10.6		10.3	58.6	24.3	58.6	24.3	10.3	11.8	29.2		10.3	58.6	24.3	58.6	24.3	10.3
3	18.4	18.4	14.8	2.7	25.9	33.9	22.7	43.4	1.2	9.6		22.7	51.3	26.0	51.3	26.0	22.7	-	20.4	30.9	1.4					
7	15.0	15.0	1.1	1.7	38.4	48.6	13.0	38.4	-	12.4		5.0	85.3	9.7	85.3	9.7	5.0	6.8	15.3	12.8						
8	13.7	13.7	1.1	1.7	33.3	42.5	22.5	35.0	15.7	33.8		11.1	50.2	38.7	50.2	38.7	11.1	3.1	23.7	16.0						

Table 10.--Cottonwood -- Percentage of lumber by grades, overrun, and defect by log grades

LOG GRADE NO. 1														LOG GRADE NO. 2																																																																																																																																																																																																																																																																																																																																																
Mill number	Diameter inside bark	Lumber in different grades in green condition				Overrun and under-run on net scale				No. of logs	F.A.S. Selects	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 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better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and better	No. 2 C and better	No. 1 C and

Table 11.--Cypress -- Percentage of lumber by grades, overrun, and defect

Mill num-ber	Diameter: inside bark	No. of logs	Lumber in different grades in green condition										:Overrun and under-:		Volume in each diameter lumber tally	
			:F.A.S.:		:Selects:		:No.1 Shop and No.1 Common:		:No.2 Common:		:No.3 Common:		:No.4 Common:			:Pecky:Timbers better:Scribner:Doyle
	Inches		Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent
All mills	11	5	--	1.0	6.7	48.8	3.4	1.7	--	38.4	7.7	23.4	72.5	3.0	0.4	
"	12	12	1.2	2.3	10.9	58.2	1.6	0.6	--	25.2	14.4	26.3	53.6	0.0	1.3	
"	13	21	0.6	10.5	23.1	50.3	6.8	1.1	0.7	6.9	34.2	13.7	35.1	1.1	2.4	
"	14	39	1.7	11.5	24.5	50.8	5.6	0.7	0.3	4.9	37.7	22.9	42.1	1.2	5.6	
"	15	70	1.4	14.8	21.5	44.7	6.6	1.5	2.5	7.0	37.7	14.4	32.0	2.4	11.7	
"	16	67	1.9	15.5	26.5	41.3	3.4	0.2	6.6	4.6	43.9	13.7	26.7	2.4	12.6	
"	17	43	2.4	15.1	25.5	43.1	8.0	0.9	0.7	4.3	43.0	14.2	23.1	3.5	9.0	
"	18	43	2.9	16.0	25.5	34.9	4.2	1.1	8.6	6.8	44.4	12.9	22.7	2.5	10.8	
"	19	12	4.5	12.8	24.6	31.6	6.2	2.5	14.9	2.9	41.9	15.0	21.9	8.2	3.1	
"	20	19	4.1	6.6	30.7	27.6	13.2	3.4	7.2	7.2	41.4	4.1	13.0	5.2	5.4	
"	21	14	7.4	10.7	21.4	22.6	5.9	2.3	21.1	8.6	39.5	7.1	11.3	1.8	4.7	
"	22	10	3.4	12.1	25.1	22.4	16.0	--	19.9	1.1	40.6	6.0	8.5	3.7	3.4	
"	23	13	10.7	12.7	22.2	23.7	7.7	--	21.3	1.7	45.6	7.6	12.0	6.5	5.2	
"	24	10	5.9	13.4	28.3	23.8	10.1	3.3	8.3	6.9	47.6	3.9	4.7	4.7	4.0	
"	25	7	13.6	10.6	25.0	29.0	11.6	4.3	3.2	2.7	49.2	2.2	6.6	8.7	3.2	
"	26	4	0.9	4.3	44.8	28.0	14.9	0.3	6.8	--	50.0	2.1	5.8	7.5	2.1	
"	27	5	20.1	22.5	17.5	27.3	5.1	0.9	--	6.6	60.1	5.2	2.8	2.8	2.7	
"	28	1	19.2	15.4	30.9	12.0	1.8	0.8	19.9	--	65.5	1.2	1.9	0.0	0.7	
"	29	7	12.7	13.7	33.1	14.4	8.0	0.3	12.3	5.5	59.5	0.7	4.3	2.4	4.1	
"	31	3	11.8	4.1	46.5	18.8	10.3	0.7	7.8	--	62.4	3.0	0.6	20.4	1.7	
"	32	2	5.6	6.0	37.4	24.0	19.7	3.7	3.6	--	49.0	21.0	26.8	8.6	1.1	
"	33	1	27.3	16.5	39.2	5.0	4.0	--	8.0	--	83.0	8.5	1.4	4.4	0.8	
"	34	2	12.7	20.8	29.4	23.6	2.5	--	11.0	--	62.9	21.3	3.0	30.0	1.5	
"	37	1	27.8	6.3	42.4	6.0	--	1.5	--	16.0	76.5	6.8	0.8	0.0	1.1	
"	44	1	35.0	13.1	36.8	9.0	5.7	0.4	--	--	84.9	11.0	17.9	3.4	1.4	
Average of all mills	18.3	412	5.8	13.1	26.6	33.4	7.1	1.2	7.4	5.4	45.5	9.4	16.5	4.4	--	

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